

## CLAIMS

What is claimed is:

- 1        1.        A metering device comprising:  
2                a metering element, operationally attached for engaging a compressible material  
3        line, thereby causing a selectable peristaltic effect upon a material in said compressible  
4        material line.
  
- 1        2.        The metering device of claim 1, further comprising a control system operatively  
2        attached to said metering element, where said control system allows for control of the  
3        selectable peristaltic effect and said metering element.
  
- 1        3.        The metering device of claim 1, further comprising a base, said base adapted so  
2        that the compressible material line is positioned between said base and said metering  
3        element.
  
- 1        4.        The metering device of claim 3, wherein said base comprises a depression for  
2        engagement with said compressible material line.
  
- 1        5.        The metering device of claim 1, wherein said metering element is rotatable.
  
- 1        6.        The metering device of claim 1, wherein said metering element is slidable.

1        7.        The metering device of claim 1, wherein said metering element has an arcuate  
2        portion.

1        8.        The metering device of claim 7, wherein said metering element is a cylinder.

1        9.        The metering device of claim 8, wherein said metering element is a cylinder of a  
2        plurality of diameters.

1        10.       The metering device of claim 1, further comprising the compressible material line.

1        11.       The metering device of claim 10, further comprising a material reservoir  
2        communicating with said compressible material line.

1        12.       The metering device of claim 10, further comprising a material dispensing end  
2        communicating with said compressible material line.

1        13.       The metering device of claim 12, wherein said material dispensing end is a  
2        dispensing needle.

1        14.       The metering device of claim 12, further comprising a robotic positioning system  
2        operatively attached to said material dispensing end.

1        15.     The metering device of claim 1, wherein said peristaltic effect causes a dispensing  
2        of a unit of material from said metering device.

1        16.     The metering device of claim 15, wherein the quantity of said unit of dispensed  
2        material is within 2% of a desired quantity of material to be dispensed.

1        17.     A precision metering system comprising:  
2                a material delivery unit including:  
3                        a material reservoir, a material dispensing end, and a compressible  
4                        material line connecting said material reservoir and said material  
5                        dispensing end;  
6                a base;  
7                a metering element, adapted to engage said compressible material line between  
8        said metering element and said base, thereby creating a peristaltic effect upon a material  
9        in said compressible material line, said peristaltic effect thereby causing a precision  
10       dispensing of a unit of material from said material dispensing end, wherein said unit of  
11       material is selectable.

1        18.     The precision metering system of claim 17, further comprising a control system  
2        operatively attached to said metering element, wherein said control system allows for  
3        control of said metering element.

1        19.     The precision metering system of claim 17, further comprising a robotic  
2        positioning system operatively attached to said material dispensing end.

1        20.     The precision metering system of claim 17, wherein said metering element is a  
2        cylinder.

1        21.     The precision metering system of claim 17, wherein said metering element is  
2        rotatable.

1        22.     The precision metering system of claim 17, wherein said metering element is  
2        slidable.

1        23.     A metering device comprising:  
2                a metering element that is one of slidable and rotatable, operationally attached for  
3        engaging a compressible material line, and upon said sliding or rotation causes a  
4        peristaltic effect upon a material located within said compressible material line further  
5        causing a precision dispensing of a unit of material from said device.

1        24.     The metering device of claim 23, further comprising a control system operatively  
2        attached to said metering element, wherein said control system allows for user  
3        programmability of said metering element.

1        25.     The metering device of claim 23, further comprising a base, wherein said  
2        compressible material line is positioned between said metering element and said base.

1        26.     The metering device of claim 23, wherein said metering element is selectable.

1       27.    A metering system comprising:  
2               a metering device including:  
3                       base;  
4                       a metering element, adapted for engaging a compressible material line  
5       positioned between said metering element and said base, thereby causing a peristaltic  
6       effect upon a material in said compressible material line;  
7               a control system operatively attached to said metering element, wherein said  
8       control system allows for control of said metering element; and  
9               a robotic positioning system operatively attached to said metering device.

1       28.    The metering system of claim 27, wherein said metering element is  
2       a rotatable cylinder.

1       29.    The metering system of claim 27, wherein said robotic positioning  
2       system includes a gantry frame.

1       30.    The metering system of claim 27, further comprising:  
2               a material reservoir;  
3               a material dispensing end; and  
4               the compressible material line operatively attached therebetween.

1        31.     A method of precision dispensing of material comprising:  
2                providing a device which includes a base; and  
3                        a metering element;  
4                positioning a compressible material line between said metering element and said  
5        base;  
6                moving one of said base, metering element, compressible material line, or a  
7        combination thereof, thereby causing a peristaltic effect upon a material within said  
8        compressible material line; and  
9                dispensing a precise unit of material from said device.

1        32.     The method of claim 31, wherein said metering element is a rotatable cylinder.

1        33.     The method of claim 31, wherein said precise unit of material dispensed is within  
2        2% of a quantity desired to be dispensed.